Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-14 (canceled).

Claim 15 (withdrawn): A method of systemically transferring a macromolecular complex to muscle cells of a subject, said method comprising the steps of:

placing a patient under total circulatory arrest using a first heart-lung cannulae and a second heart-lung cannula, each said cannula being placed in a suitable vessel through a cannulation site in each vessel;

lowering the patient's temperature to 15 to 18 °C;

partially exsanguinating and decannulating the patient from the first and second heart-lung cannulae;

introducing a first balloon catheter and a second balloon catheter in the cannulation sites, wherein upon inflation the first balloon catheters occludes the aorta and the second balloon catheter occludes the venae cavae to preclude backflow;

inflating the balloon catheters to a pressure exceeding that applied from cannulae in extremities of the patient; and

simultaneously applying the macromolecular complex in solution to all four of the patient's extremities via the cannulae located therein;

wherein each of said first and second balloon catheters comprises:

an inflatable balloon having an interior, said balloon being expandable radially without significant distal expansion, and, when inflated, said balloon forming an elongate, continuous, cylindrical tube having an outer diameter that is substantially constant along a full length of said tube and that is sufficient to abut the walls of a vessel in which it has been inserted to occlude blow flow therethrough;

a flexible cannula having a distal end and a proximal end and extending along an axis having an internal channel for the controlled application of fluid under pressure;

said balloon being attached to the cannula at at least two points, one point of attachment being adjacent to the distal end of the cannula and a second point of attachment being adjacent to the proximal end of the cannula, such that when inflated, said balloon expands radially to abut the walls of the vessel in which it has been inserted and to occlude the aortic space or the venae cavae.

Claim 16 (withdrawn): The method according to claim 15, wherein the solution is allowed to dwell for a period of about 5 to 30 minutes.

Claim 17 (withdrawn): The method according to claim 15, further comprising the steps of: flushing out residual macromolecular complex; withdrawing the balloon catheters; reinserting the heart-lung cannulae, resanguinating and rewarming the patient.

Claims 18-20 (canceled).

Claim 21 (currently amended): A balloon catheter for use in infusion of macromolecular complexes into the venous microvasculature of a hypothermic patient, said balloon catheter comprising:

an inflatable balloon having an interior, said balloon being expandable radially without significant distal expansion, and, when inflated, said balloon forming an elongate, continuous, cylindrical tube having an outer diameter that is substantially constant along a full length of said tube and that is sufficient to abut the walls of a main vessel in which it has been inserted to occlude ~~blow~~ flow therethrough and flow from side branch vessels into and out of the main vessel;

a flexible cannula having a distal end and a proximal end and extending along an axis having an internal channel for the controlled application of fluid under pressure;

wherein said balloon is attached to the cannula at least two points, one point of attachment being adjacent to the distal end of the cannula and a second

point of attachment being adjacent to the proximal end of the cannula, such that when inflated, said balloon expands radially to abut the walls of the main vessel in which it has been inserted and occludes the aortic space or the vena cavae and flow from branch vessels into or out of the main vessel.

Claim 22 (previously presented): The balloon catheter according to claim 21, wherein the balloon is attached at three or more locations along the cannula.

Claim 23 (previously presented): The balloon catheter according to claim 21, wherein the balloon comprises at least two compartments formed by multiple points of attachment.

Claim 24 (previously presented): The balloon catheter according to claim 23 in which the balloon comprises at least three compartments formed by multiple points of attachment, in which one of said compartments is an intermediate compartment situated along the length of the cannula between two other balloon compartments, and in which the distensibility of the intermediate compartment is substantially lower than the distensibility of each of said two other balloon compartments, whereby, when the balloon catheter is disposed in the vena cavae of a patient, with said intermediate compartment situated in the right atrium of the patient's heart, expansion of said intermediate balloon compartment is prevented from distending the patient's heart excessively.

Claims 25-32 (canceled).

Claim 33 (previously presented): A kit comprising a balloon catheter according to claim 21 and instructions for use thereof.

Claim 34 (currently amended): An internal occlusion balloon catheter for occluding blood flow through ~~a patient's~~ an aorta of a hypothermic patient, comprising:

a flexible, elongate cannula having a distal end and a proximal end and extending along an axis having an internal channel for the controlled application of fluid under pressure; and

an inflatable and radially expandable balloon envelope attached to said cannula and extending from adjacent said distal end of said cannula to adjacent said proximal end of said cannula;

in an inflated condition, said balloon envelope forming an elongate, continuous, substantially-cylindrical tube along its full length, and when positioned within the patient's aorta, said full length of said tube of said balloon envelope being of sufficient length to extend continuously from a location adjacent a bottom of the patient's abdominal aorta through the patient's aortic arch and into the patient's ascending aorta thereby substantially filling and occluding ~~blow~~ flow within the patient's entire aorta and preventing cross-flow through the aorta between various branch vessels branching from the aorta.

Claim 35 (currently amended): An internal occlusion balloon catheter according to claim 34, wherein said catheter, including said cannula and said balloon envelope, is ~~J-shaped~~ flexible and pre-shaped into a J-shape.

Claim 36 (previously presented): An internal occlusion balloon catheter according to claim 35, wherein said cannula has a distal region for location within the patient's aortic arch that is pre-shaped in a curve to match an internal curvature of the patient's aortic arch.

Claim 37 (previously presented): An internal occlusion balloon catheter according to claim 36, wherein said curve of said distal region of said cannula is an arcuate curve subtending an angle of approximately 180°.

Claim 38 (previously presented): An internal occlusion balloon catheter according to claim 37, wherein the catheter has multiple lumens including at least one serving as a vent during vector recirculation with a tip of said vent lumen open to a vessel lumen.

Claim 39 (previously presented): An internal occlusion balloon catheter according to claim 38, wherein said arcuate curve has a radius of curvature of about 2 to 4 cm, said length of said balloon envelope is about 40 to 70 cm, 20 to 30 cm, or 10 to 20 cm and said tube having an outer diameter of about 1.5 to 5.0 cm, 0.5 to 2.0 cm, or 0.3 to 1.0 cm.

Claim 40 (previously presented): An internal occlusion balloon catheter according to claim 38, wherein said balloon envelope is a single, continuous balloon having an uninterrupted internal space for expansion fluid.

Claim 41 (previously presented): An internal occlusion balloon catheter according to claim 38, wherein said balloon envelope includes a series of separate balloon segments disposed in end-to-end relationship with no gaps therebetween.

Claim 42 (currently amended): An internal occlusion balloon catheter for occluding blood flow through a ~~patient's~~ vena cavae of a hypothermic patient, comprising:

a flexible, elongate cannula having a distal end and a proximal end and extending along an axis having an internal channel for the controlled application of fluid under pressure; and

a series of inflatable and radially expandable balloons attached to said cannula;

in an inflated condition, each of said series of balloons forming an elongate, continuous, substantially-cylindrical tube along its full length, and when positioned within the patient's vena cavae, one of said balloons being of sufficient length to extend continuously from a location adjacent a lower end of the patient's inferior vena cava to just below a right atrium of the patient's heart and another one of said balloons being of sufficient length to extend through the patient's superior vena cava and occlude the azygous vein but does not extend into the right atrium.

Claim 43 (previously presented): An internal occlusion balloon catheter according to claim 42, wherein said series of balloons includes an intermediate balloon, and wherein said intermediate balloon has a distensibility substantially lower than a distensibility of other of said balloons such that, when the balloon catheter is disposed in the vena cavae of the patient, said intermediate balloon extends within the right atrium of the patient's heart and expansion of said intermediate balloon is prevented from excessively distending the patient's heart.

Claim 44 (previously presented): An internal occlusion balloon catheter according to claim 42, wherein the catheter has multiple lumens including at least one serving as a vent during vector recirculation with said vent lumen being open to the right atrium.

Claim 45 (previously presented): An internal occlusion balloon catheter according to claim 44, wherein said length of said tube formed by said series of balloons is about 40 to 70 cm, 20 to 30 cm, or 10 to 20 cm and said tube has an outer diameter of about 2 to 5 cm, 1 to 2 cm, or 0.3 to 1 cm.